ABSTRACT OF THE DISCLOSURE

Light emitted from a light source 22 is used through a light projection optical system 23 to perform coaxial down-emission lighting on a measurement target 36. Light reflected by the measurement target 36 is formed on a photo-detector 26 through an image formation optical system 24. Along its optical path, a spectroscope 25 is provided for converting an image impinging on the photo-detector 26 into a spectroscopic image having a predetermined wavelength band. A measurement point extraction portion 32 in a signal processing portion 28 determines a predetermined film thickness measurement point from an image picked up by the photo-detector 26, extracts an image signal at the film thickness measurement point, and transmits t to film thickness operation portion 33. The film thickness operation portion 33 measured film thickness of a thin film, which is the measurement target 36, from this signal.